[JP,2003-337930,A]

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FULL CONTENTS CLAIM + DETAILED DESCRIPTION TECHNICAL FIELD PRIOR ART EFFECT OF THE INVENTION TECHNICAL PROBLEM MEANS EXAMPLE DESCRIPTION OF DRAWINGS DRAWINGS

[Translation done.]

FULL CONTENTS

[Claim(s)]

[Claim 1] The number-of-steps measuring assembly which is a number-of-steps measuring assembly at the time of a walk of a user or a run, and is characterized by having a means to ask for the number of steps by the number of times which the guide peg of the right and left at the time of the aforementioned walk or a run intersected.

[Claim 2] Means to ask for said number of steps are at least one or more signal detection means to detect the signal sent from at least one or more signal dispatch means and this signal dispatch means, and a number-of-steps measuring assembly according to claim 1 characterized by constituting "Be alike."

[Claim 3] It is the number-of-steps measuring assembly according to claim 2 characterized by constituting said signal detection means by at least one or more magnetometric sensors while said signal dispatch means is constituted by at least one or more magnetic field development means.

[Claim 4] Claim 1 to which a means to ask for said number of steps is characterized by equipping the part of bases, such as inside and outside of one pair of footwear, or an ankle, - a number-of-steps measuring assembly given in any 1 term of three.

[Claim 5] Claim 1 characterized by having a Measurement Division means to measure the time interval which the guide peg of the right and left at the time of the aforementioned walk or a run intersects - a number-of-steps measuring assembly given in any 1 term of four.

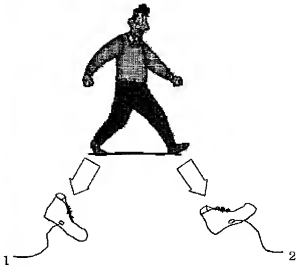
[Claim 6] Claim 1 characterized by having a memory means to memorize the number of steps called for by a means to ask for said number of steps - a number-of-steps measuring assembly given in any 1 term of five.

[Claim 7] Claim 1 characterized by having the separated one or display means in order to display the number of steps called for by a means to ask for said number of steps - a number-of-steps measuring assembly given in any 1 term of six.

[Claim 8] Claim 1 characterized by having a means to disconnect a part of current supply of this equipment when there is no predetermined time change in the output of said signal detection means - a number-of-steps measuring assembly given in any 1 term of seven.

[Claim 9] Claim 1 characterized by having the means of communication with external information processors, such as a personal computer or a personal digital assistant, - a number-of-steps measuring assembly given in any 1 term of eight.

Drawing selection Representative draw.



[Translation done.]

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the number-of-steps measuring assembly which measures the number of steps at the time of the walk at the time of a user walking or running.
[0002]
[Description of the Prior Art] The method which measures the number of steps by the sensor by which this kind of number-of-steps measuring assembly detects up-and-down motion of the body at the time of a walk, for example, a pendulum type, an acceleration sensor, etc., was taken conventionally.
[0003]
[Problem to be solved by the invention] However, in the above-mentioned conventional example, in order to measure the exact number of steps, the mechanism to adjust sensor detectability is needed so that it can respond to the conditions of the sidewall of how to walk along a pedestrian, the shoes to wear, or shoes. Moreover, although the pedometer which has such a regulating function is also proposed, it is difficult to enable it to correspond to up-and-down motion of the body corresponding to a walk automatically. Moreover, it is also difficult to deal with mechanical durability in increase of a user's number of steps in the thing of such a conventional example from a healthy intention.
[0004] Then, this invention solves the above-mentioned technical problem, and aims at offering the number-of-steps measuring assembly which becomes possible [measuring the exact number of steps adapted to a actual walk of a user]. In addition, in these "walks" in this invention, also when "running" with a natural thing, it contains.
[0005]
[Means for solving problem] This invention offers the number-of-steps measuring assembly constituted like following (1) - (9) in order to attain the above-mentioned technical problem.
(1) The number-of-steps measuring assembly which is a number-of-steps measuring assembly at the time of a walk of a user or a run, and is characterized by having a means to ask for the number of steps by the number of times which the guide peg of the right and left at the time of the aforementioned walk or a run intersected.
(2) A means to ask for said number of steps is a number-of-steps measuring assembly given in at least one or more signal detection means to detect the signal sent from at least one or more signal dispatch means and this signal dispatch means, and the above (1) characterized by constituting "Be alike."
(3) It is a number-of-steps measuring assembly given in the above (2) characterized by constituting said signal detection means by at least one or more magnetometric sensors while said signal dispatch means is constituted by at least one or more magnetic field development means.
(4) A number-of-steps measuring assembly given in either of above-mentioned (1) - (3) to which a means to ask for said number of steps is characterized by equipping the part of bases, such as inside and outside of one pair of footwear, or an ankle.
(5) A number-of-steps measuring assembly given in either of above-mentioned (1) - (4) characterized by having a Measurement Division means to measure the time interval which the guide peg of the right and left at the time of the aforementioned walk or a run intersects.
(6) A number-of-steps measuring assembly given in either of above-mentioned (1) - (5) characterized by having a memory means to memorize the number of steps called for by a means to ask for said number of steps.
(7) A number-of-steps measuring assembly given in either of above-mentioned (1) - (6) characterized by having the separated one or display means in order to display the number of steps called for by a means to ask for said number of steps.
(8) A number-of-steps measuring assembly given in either of above-mentioned (1) - (7) characterized by having a means to disconnect a part of current supply of this equipment when there is no predetermined time change in the output of said signal detection means.
(9) A number-of-steps measuring assembly given in either of above-mentioned (1) - (8) characterized by having the means of communication with external information processors, such as a personal computer or a personal digital assistant.
[0006]
[Mode for carrying out the invention] By applying the above-mentioned composition, the measuring assembly which measures walking speed or walking distance is specifically constituted as follows, for example. First, a user equips guide peg of one of the two with a

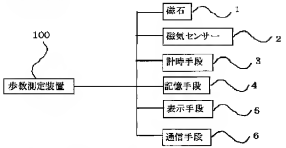
signal dispatch means, and already equips guide peg of one of the two with a signal detection means. Next, by accumulating the number of times measured for every walk one step respectively covering a total distance which walks the time interval which a guide peg intersects, for example in the signal generated when a user walks and a guide peg on either side crosses based on the result calculated by the operation means It can ask for the number of steps which the user actually walked.
[0007]
[Working example] Below, the work example of this invention is explained.
[Work example 1] In the number-of-steps measuring assembly of the work example 1 of this invention, the number-of-steps measurement means used one magnet as a dispatch means and using one magnetometric sensor as a detection means was made to build in one pair of shoes, and was constituted.
[0008] It is drawing for drawing 4 to explain the composition of this example from drawing 1 . Drawing 1 is the block diagram having shown the composition of this example, and drawing 2 is drawing which wrote the walk figure of the user at the time of equipping with the number-of-steps measuring assembly of this example. Moreover, drawing 3 is drawing which wrote typically the motion of the right leg when using a user's left leg as the axopodium, and the relation of the magnetometric sensor output, and drawing 4 is drawing having shown the magnetometric sensor output during a walk continuously. the magnet with which 100 was used as the number-of-steps measuring assembly of this invention, and the viscus of 1 were carried out to the user's **** in these drawings, the magnetometric sensor with which 2 was built in the user's ****, and 3 -- a time check -- a means and 4 -- a memory means and 5 -- a display means and 6 -- a means of communication and 11 -- a time check -- it is the time interval of 1 set of magnetometric sensor output changes measured with a means.
[0009] In the above-mentioned composition, when a left leg turns into axopodium among walk operation of a user and it has arrived at the ground surface, a motion of a right leg passes through the neighborhood of a left leg, performing the pendular movement in general, as shown in drawing 3 . When a magnet 1 is most approached as are shown in drawing 5 , and the magnet 1 is placed in a user's walk direction almost right-angled and the output of the magnetometric sensor 2 at this time is shown in drawing 3 , an output serves as the maximum.
[0010] Moreover, as shown in drawing 6 , when a magnet 1 is placed almost in parallel with a user's walk direction, the size of the signal detected at two places of a magnetic length interval as the output of the magnetometric sensor 2 at this time is shown in drawing 7 serves as the maximum or the minimum. What accumulated the number of times measured for every walk one step respectively covering a total distance which walks the time interval which a guide peg intersects in this output signal, for example based on the result calculated by the operation means is equivalent to the number of steps, and displays this on the display means 5. Moreover, if required, said number-of-steps information will be transmitted to external information processors, such as a personal computer and a personal digital assistant, using the means of communication 6.
[0011] Moreover, in the measuring operation of a series of number of steps, in order to stop power consumption as much as possible, you may equip this equipment with a power save mode. The flow chart of drawing 10 showed the example. A power save mode is explained along with drawing 10 . First, in Step S101, measuring operation of a series of number of steps is performed. It is judged whether in Step S102, the output of a signal detection means has fixed time change in that case. When the output of a signal detection means has change, it returns to Step S101 until change is lost, and measuring operation of a series of number of steps is performed. Like [when a user sits down], between fixed time, when there is no change in a signal detection means output, it moves at Step S103. It stands by until it disconnects some [, such as a display means,] power sources, it moves to Step S104 and change arises in the output of a signal detection means, in order to stop power consumption as much as possible (measuring operation of a series of number of steps is not performed). If change arises in the output of a signal detection means, Step S105 will be made to restore some power sources moved and disconnected, it will return to Step S101, and measuring operation of a series of number of steps will be performed.
[0012] [Work example 2] In the above-mentioned work example 1, the same effect as the above-mentioned work example 1 is acquired by this to having used one magnet and one magnetometric sensor using two magnets and one magnetometric sensor in the work example 2. The case where the number-of-steps measurement means used two magnets as

a dispatch means in this example, and using one magnetometric sensor as a detection means is built in one pair of shoes next is explained.
[0013] Drawing 8 and drawing 9 are drawings for explaining the composition of this example. Drawing 8 is drawing explaining the inside of shoes, and drawing 9 is drawing having shown the magnetometric sensor output during a walk continuously. As for 1a and 1b in drawing 8 , 2 is a magnetometric sensor magnetically, and in the above-mentioned composition, Magnets 1a and 1b are placed in a user's walk direction almost right-angled, and they arrange the magnetization direction of said magnets 1a and 1b so that it may become reverse. Thus, by arranging Magnets 1a and 1b, the magnetometric sensor output can obtain the almost same thing as a work example 1, as shown in drawing 7 . About others, since it is the same as a work example 1, it omits.
[0014] [Work example 3] Although it had composition which all built the number-of-steps measurement means in shoes in the work example 1 and the work example 2, the same effect is acquired even if it equips the outside and ankle of shoes with said number-of-steps measurement means independently. In a work example 3, as shown in drawing 11 , an ankle is equipped with a number-of-steps measurement means, and the magnet with which the left leg neck was equipped with one, and 2 are the magnetometric sensors with which the right leg neck was equipped among drawing 11 . About others, since it is the same as a work example 1, it omits.
[0015] As mentioned above, although the work example 3 explained from the work example 1, using magnetism as a kind of signal sent and detected, the same effect is acquired even if it uses light, ultrasonic waves, an electric wave, etc.
[0016]
[Effect of the Invention] According to this invention, it faces measuring the number of steps at the time of a walk, and the number-of-steps measuring assembly which becomes possible [measuring the exact number of steps adapted to a actual walk of a user] can be realized.

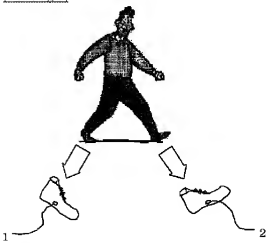
[Brief Description of the Drawings]
[Drawing 1] It is the block diagram showing the composition concerning the work example 1 of this invention.
[Drawing 2] It is drawing which wrote the walk figure of the user concerning the work example 1 of this invention.
[Drawing 3] It is drawing showing a motion of the right leg at the time of using the left leg of the user concerning the work example 1 of this invention as the axopodium, and the relation of the magnetometric sensor output.
[Drawing 4] It is drawing having shown continuously the magnetometric sensor output under walk concerning the work example 1 of this invention.
[Drawing 5] It is drawing showing the magnet inside shoes and the physical relationship of a magnetometric sensor concerning the work example 1 of this invention.
[Drawing 6] It is drawing showing the magnet inside shoes and the physical relationship of a magnetometric sensor concerning the work example 1 of this invention.
[Drawing 7] It is drawing which expressed continuously the output of the magnetometric sensor in drawing 6 concerning the work example 1 of this invention.
[Drawing 8] It is drawing showing the magnet inside shoes and the physical relationship of a magnetometric sensor concerning the work example 2 of this invention.
[Drawing 9] It is drawing which expressed continuously the output of the magnetometric sensor concerning the work example 2 of this invention.
[Drawing 10] It is a flow chart figure for explaining the power save mode concerning the work example 1 of this invention.
[Drawing 11] It is drawing which expressed the place equipped with this equipment with the ankle concerning the work example 3 of this invention.
[Explanations of letters or numerals]
1, 1a, 1b: Magnet
2: Magnetometric sensor
3: a time check -- a means
4: Memory means
5: Display means
6: Means of communication

11: The time interval of a magnetometric sensor output
100: Number-of-steps measuring assembly

[Drawing 1]



[Drawing 2]



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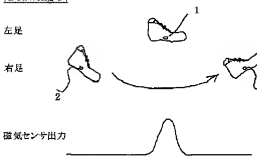
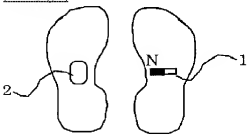


[Drawing 5]



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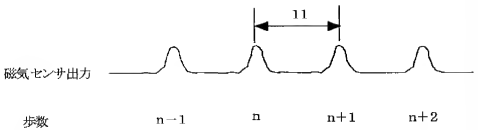

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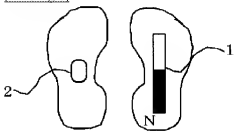

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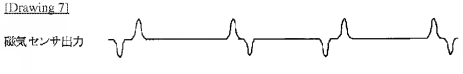

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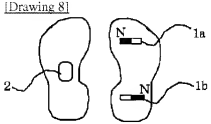
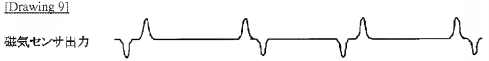
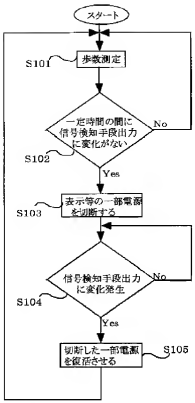


[Drawing 9]



[Drawing 10]



[Drawing 11]

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